STAT

CRITICAL EVALUATION OF CONDITIONS IN THE FIELD OF EPIZOOTIOLOGY

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Epizootiology, strictly speaking, is the science of the source and paths of spread of contagious diseases in animals. In practice, however, it embraces all the problems related to those diseases, and thus also the etiology, symptomatology, diagnosis, prophylaxis, and the problem of control.

As a science, epizootiology uses investigative laboratory methods which are part of microbiology and histopathology; on the other hand, it relies on observation and investigation of the environmental aspects which necessarily and indispensably become a part of epizootiologic study, as well as on clinical and anatomopathological material.

The fight against epizootic diseases has always been, and still remains, a cardinal veterinary problem in Poland because of the great economic and sanitary importance of contagious animal diseases. As a result of this, epizootiology became one of the leading topics of veterinary medicine, and contagious diseases in animals have long become the subject of intensive investigations. To this research work Poland has contributed quite a great deal. Some of the Polish investigators have been: L. Refinus, author of the first Polish papers on contagious diseases in animals; A. Adamowicz, who wrote on vaccination against pleuropneumonia in cattle; E. Ostrowski, author of a sanitation code published in Warsaw in 1948, which code was at that time a model accumulation of State regulations pertaining to the fight against

epidemic diseases in animals; P. Seifman, author of numerous papers dealing with anthrax, rabies, glanders, cattle pest, etc; W. Wyznikiewicz-Turczynowicz, inventor of a vaccine against cattle pest; J. Karlinski, J. Kowalewski, E. Noniewicz. In recent years: J. Gordzialkowski, who did valuable research work on anthrax, glanders, and cattle pest and wrote the first scientific textbook in Polish on contagious diseases in animals; P. Zochowski, research on murrain, hog erysipelas, and glanders in horses; P. Andrijewski, research work on the subject of cattle pest and pleuropneumonia of cattle; W. Sarnowiec, murrain, tuberculosis, brucellosis, Wroblewski, who isolated a culture of Asterococcus mycoides, cause of pleuropneumonia of cattle; Novak, author of a popular book, Documenta Microbiologica.

Not only veterinary physicians were engaged in research work on contagious diseases in animals; representatives of other branches of science made their contribution to this problem. The following names of outstanding scholars are mentioned: L. Ciezkowski, a botanist, inventor of the anthrax sporovaccine; medical doctors: N. Nencki, who was Wyznikiewicz-Turczynowicz's co-worker in research on cattle pest; O. Bujwid, investigations concerning rabies, tuberculosis, anthrax, and swine erysipelas; S. Serkowski, S. Szymanowski, and others.

In the analysis of the epizootic conditions prevailing in our country during the period between the two wars, the outstanding achievements of our Veterinary Service Organization in the field of controlling contagious disease in animals deserve a special commendation. Cattle pest, the most menacing epidemic disease of cattle, an inheritance from the first World War, was promptly and skillfully

liquidated. (Editor's Note. The liquidation of these contagious diseases which has been recently accomplished in 6-7 years, required at that time 15-20 years. It was not done so "promptly and skillfully.")

This epidemic threatened all Europe and became a matter of great concern to the breeding industry and veterinary authorities of all European countries who had sent their representatives to Poland to study our methods of fighting this epidemic. The names of Gordzialkowski, Jaroszynski and Zagrodski are connected with the history of our fight against cattle pest. In 1933 the epidemic of pleuropneumonia in cattle was definitely liquidated, and soon afterwards the dourine epidemic was brought under control. In 1938, as a result of a large scale malleinization action, horse glanders was exterminated. The excellent results of the crusade against epidemics of contagious diseases among animals are attributable in the first place to the vigorous and skillful action of our Veterinary Service Organization, and to the efforts of the local veterinarians who carried out their task in accordance with regulations contained in a well-elaborated legislative code suitable to the social and political conditions prevailing at the time in Poland. The fight was carried almost exclusively by methods based on formulas imported from abroad; our own methods, created by Polish scientists, were used rarely -- for instance, in the action against pest and pleuropneumonia of cattle. Indeed, when compared with the exploits of our Administrative Branch of the government the scientific achievements of Polish epizootiologists look rather modest; however, conditions under which the representatives of this branch of science had to work were very

poor and offered limited opportunities. The importance of the Veterinary Health Service was underestimated in pre-war Poland; this was a handicap which did not favor good results from scientific work. The Veterinary Department PINGW and other scientific institutions under the authority of the Ministry of Agriculture were busy chiefly with production problems or, at the most, with current diagnostic investigation. Scientific research was a matter of lesser significance, and when undertaken was carried out occasionally, irregularly, and haphazardly.

It was only during the years immediately preceding the war that a turn for the better took place. Important problems of local character became the subject of scientific investigation (Zochowski: murrain and erysipelas of swine; Zagradski, Grycz, Teklinski: brucellosis; Brill: pullorosis and disease of young cattle). There was a streak of revelation in scientific work carried out by or under the guidance of Professor Panek at the Bydgoszcz Veterinary Institute. The investigation was concerned with active ingredients in tuberculin, mallein, and abortin. The methods applied by Professor Panek were entirely progressive, even revolutionary; these methods, however, have never been published and remain the author's or his family's secret. This gives evidence of a flagrantly capitalistic approach of the author to science.

The subject of epizootiologic investigations performed in schooling centers were first of all problems pertaining to the clinical aspect rather than to problems of the involved locale. This was doubtlessly in harmony with the therapeutic tendency prevailing at that time in the two branches of medical science; but above all, such selection

of the subject was a logical result of separation of the school from the afflicted region (location in large cities and lack of means of transportation). The clinical tendency dominated not only scientific research work, but prevailed in the field of teaching and instruction, as the clinical material offered almost the only research data available. Hence, a somewhat fortuitous approach resulted in the choice of subjects for research work performed at the epizootiologic Institute of the University of Warsaw, although it must be emphasized that a definite epizootiologic aspect can be noticed in this work. It was only during the last few years before the war that there appeared a distinct tendency to establish a closer relationship between didactic, scientific work and the animal area; granting to the Veterinary Institute its own means of transportation was a factor here.

The Microbiologic Institute of the Veterinary Faculty was fortunate to have closer contact with the animal area due to the fact that it had on its premises the veterinary analytical and diagnostic laboratory of the Ministry of Agriculture, and this circumstance favorably influenced the specialization of this Institute.

In the teaching field during the said period the clinical tendency predominated, as was already mentioned. Practical instruction in epizootiology was marked by shortages and shortcomings. However, it is worthwhile to mention the appearance of a textbook on contagious animal diseases by Professor Gordzialkowski which must be regarded as an important accomplishment considering the difficult conditions under which the teaching and scientific veterinary institutions are obliged to work.

The most characteristic feature of the era between the two wars was the inadequate adaptation of scientific research to the needs of the administration and the disease areas. The administration did not hide its lack of confidence in the country's own scientific resources; consequently the campaign against contagious diseases was waged with methods imported from abroad. These methods have not always been properly selected, as is the case of the English repeated tuberculin test which was made official in Poland and which turned out to be impractical and of little value. Science worked without a definite plan and with little or no consideration for the real needs of the country. It frequently preoccupied itself with problems which had no practical significance at that time, for example, the epizootiologic Institute in Warsaw devoted its time to the study of anthrax). Considering the undermanned scientific staff, this should be branded as waste of qualified personnel. Nor was adequate attention paid to the idea of educating cadres of future scientists. With respect to organization of scientific work we consider it a drawback that local veterinary analytical-diagnostic field stations were liquidated and the entire research work was centralized in the Veterinary Faculty PINGW, in Pulawy. This threatened still greater separation of scientific research work from the afflicted areas which, because of the heterogeneous economic structures prevailing in different sections of the country, had widely diverse needs.

Despite numerous organizational errors, despite the fact that the State and society evidenced little appreciation for the importance of veterinary sciences; and despite the limited opportunities offered to scientific research there appeared during this period some publications of outstanding value which must be attributed mainly to the

creative power and enthusiasm of individual scholars (Panek, Sarnowicz, Wroblewski, Zochowski, Brill, Klobusiewicz, and others).

The postwar period brought about an improvement in many areas. The organizers of veterinary health service and research partially succeeded in avoiding mistakes made in the past. With respect to organization of teaching and research work it was much to their credit that an independent State Veterinary Institute at Pulawy was created to which county institutes of veterinary hygiene and other research centers scattered all over the district were subordinated. Some of them, for instance the Department of Veterinary Hygiene of Bydgoszcz, developed useful activities in a relatively short time; and contributed their share to the solution of some of the acute problems in their districts. It was their merit that the proper authorities became interested in problems which were of actual local significance, and an effort was made to work out independent methods of diagnosis and prevention of contagious diseases. A great deal of really good work was done in these centers; and some of their achievements, especially those concerning dourine, tuberculosis, brucellosis, and swine erysipelas have been applied in practice with good results. One of the most outstanding pieces of research done at the Institute was the investigation of the problem of pseudo-pestilence in chickens.

During the first years of the post-war period epizootiology devoted its attention to purely practical problems; this was justified by the unfavorable epizootic conditions prevailing in the country. Most attention was therefore given to diseases which caused the greatest damage. Very good results were achieved in some cases. Certain diseases, like dourine and malleus in horses, were completely liquidated; the spread of others was greatly controlled. In particular,

it must be emphasized that a large scale campaign against rabies was undertaken for the first time in Poland's history through widespread use of a preventive vaccine. The wartime ravages forced our administration to resort to the scientific achievements of foreign countries, as it would be difficult to develop original methods in our own laboratories in a short time. In many instances, however, these foreign methods were too eagerly and indiscriminately used, and accepted with excessive, almost idolatrous, enthusiasm (methods against brucellosis) and with inadequate criticism. The views of foreign authorities were too frequently and credulously taken for granted without consideration given to the opinion of our own epizootiologists and to the peculiar conditions of our country. With rabies for instance, vaccines used have not been thoroughly checked by our own specialists. A number of serious mistakes were made also while organizing our scientific epizootiologic centers. One such mistake was the failure to establish a central body for research and teaching work at the State Veterinary Institute at Pulawy so that specialists of different fields of epizootiology might be brought together. A central institution of this kind would become a reliable authority on scientific matters. It could cope with all related problems, could become a training center for future scholars, and be of great service to the Veterinary Department.

Up to now, no adequate control of biologicals has been organized so their quality has not always met the requirements (tuberculin, Staub's vaccine, anti-rabies vaccine). Another organizational shortcoming with respect to PIW was faulty handling of personnel. There is no shortage of qualified people. Poor utilization and inadequate assignment of specialists (overburdening them with technical and

administrative duties,) a shortage of technicians, an excess of red-tape involving administrative detail with a simultaneous shortage of administrative personnel, an indiscriminate and improper selection of candidates for scientific positions -- all these circumstances hamper and restrict any rational scientific effort. That is why PIW has not yet put scientific research into full swing, but has confined its activity mainly to production problems. The bulk of scientific research work was done in local, independent industrial institutions, or in universities.

In the teaching field the situation is as follows. Of three existing Veterinary Faculties, the one at Wroclaw still has a vacant chair of epizootiology, has no laboratory building, and has inadequate living space for experimental animals. The provisional manager is a professor of pathology and therapy. This department has a staff of one adjunct, two senior and one junior assistants, and one laboratory technician. At present there is no evidence of any scientific research work being done.

The chair of Veterinary Microbiology of the same university is also still vacant. Temporarily, lectures are read by an adjunct. The chair is now located in two rooms without adequate equipment. The auxiliary personnel consists of three additional persons.

At the epizootiologic clinic of the Veterinary Faculty at the University of Warsaw the Director is an associate professor. This clinic has its own building, but no hospital facilities, no suitable pens for large animals. The staff consists of two adjuncts, one senior and two junior assistants, and three laboratory technicians.

The epizootiologic clinic of the University of Warsaw was reactivated in 1947; the Institute itself, however, was not reestablished until 1948 when it regained its former prewar building.

The Microbiologic Clinic of the Veterinary Faculty at the University of Warsaw is directed by an associate professor, has its own laboratory facilities, has a staff of one adjunct, one senior and two junior assistants, and one laboratory technician.

The first to become organized were the Microbiologic and Epizootiologic Veterinary Clinics of UMCS. Their director is an associate professor. Both clinics have common laboratory establishments, have on their staff six full-fledged and four junior scientific workers.

Not all the clinics have organized their research work adequately; however, the present shortcomings can be explained to a great extent by their limited facilities, by the necessity to devote part of the time to teaching and administration, and by inadequate space and financial resources. Notwithstanding all these difficulties, these institutions display a great deal of energy in initiating a very intensive and productive scientific program that contributes numerous original papers and articles to the professional literature. A word of praise is to be said about the active cooperation existing between the respective clinical centers and the Veterinary Department in numerous conferences, in ready acceptance of investigative assignments, and in organization of teaching courses. Moreover, the Epizootiologic Faculty UMCS is to be given credit for the publication of a textbook entitled Diseases of Young Animals written by Professor Doctor J. Parnas.

The Epizootiologic Faculties display shortcomings also in the didactic field: the most deplorable handicap is that lectures in theory are not supplemented by practical training. These institutions have no transportation means at their disposal and cannot, therefore, help their students maintain constant contact with the epizootic regions. They also have no hospital facilities nor enough space for increasing the number of animal clinical specimens. Under the present circumstances slaughterhouses offer the only available means for practical training of students. And though they are far from being suitable and adequate places for teaching purposes, slaughterhouses should be used more frequently than they have been.

Considering the difficulties under which veterinary science functions, we must admit that the scientific accomplishments in the field of epizootiology are substantial both qualitatively and quantitatively. A number of valuable papers have been published, and in many instances the results of the research can be successfully applied in practice. Besides minor scientific contributions and theoretical research, a great deal of investigation was devoted to problems of practical importance. Not isolated phenomena but over-all problems became the subject of investigation. Individual institutions show a tendency to specialize in a definite direction. For instance, the Institute of Microbiology and Epizootiology UMCS is specializing in zoonosis and diseases of young animals. There is also a tendency to study problems connected with actuality and to shift the center of emphasis of investigation from laboratories to the animal environment with special consideration given to local conditions. The latter phenomenon is to be attributed first of all to the great interest in

Soviet biology displayed by many Polish epizootiologists. They have always taken great interest in Soviet scientific development. During the period between the wars we subscribed to their professional papers and have their textbooks (Institute of Epizootiology UW). Also the scientific achievements in Soviet Russia have reached our laboratories (anti-erysipelas vaccine of Muromcew -- Jastrzebski, Stryczak). After the war this contact was renewed. Knowledge of the scientific achievements of the Soviet Union is acquired much more easily because of the existence of vast professional literature on veterinary matters; this literature is readily available in the form of professional journals, textbooks, and monographs. The only difficulty in making full use of the Soviet Union scientific achievements lies in the inadequate knowledge of the Russian language by the younger generation of Polish scholars. With great appreciation we therefore receive the appearance of Polish translations of Russian textbooks as well as the practice of publishing in the Veterinary Medicine Journal translations of the more valuable Russian works, complete or in summary.

In the analysis of work accomplished, mistakes should be noted as well as the numerous positive achievements. They are the same mistakes we noticed during the prewar period: prevalence of laboratory research investigation, lack of definite plan resulting in continuous switching from one subject to another, overlooking of important problems and lack of contact with practical life, inadequate interest in problems concerning general epizootiology. The professional literature of the post-war era, particularly of the early period, shows distinctly cosmopolitan tendencies which find expression in preferring subjects

of vital interest to the West regardless of their usefulness to the People's Republic, and in frequent reference to Anglo-Saxon authors while omitting our own and those of the Soviet Union.

The roster of problems to be coped with during the Six-Year Plan reads as follows:

FOR THE STATE INSTITUTE OF VETERINARY MEDICINE

A. Problems of primary importance: investigation of virus diseases in domestic animals and elaboration of the most effective methods in combating them.

B. Alternate problem N1:

1. Perfection of the method of fighting contagious disease of cattle -- particularly tuberculosis, streptococcic udder infections, and diseases of young animals;

2. Perfection of the principles of a campaign against contagious diseases in hogs -- particularly the grippe in suckling pigs, swine erysipelas, murrain, and colibacillosis;

3. The problem of a fight against contagious anemia;

4. Elaboration of an improved method of fight against poultry diseases, particularly against cholera, diarrhea in chickens, and diseases transmitted by mammalia;

5. Methods of fight and prevention of rabies by means of a specific vaccine;

6. Investigation and elaboration of methods aiming at

preservation of healthfulness in fish, in particular to combat septicemia in carp.

C. Alternate problems N2:

1. Investigation of the influence of disease on the productiveness of bees and evaluation of possible prophylactic methods;

2. Serological tests on experimental animals in prevention of dourine;

3. Research on standardization of diagnostic methods in contagious diseases;

4. Research work on the problem of controlling biochemical drugs.

The Epizootiologic Institute of the University of Warsaw is planning research on the following subject:

(a) Swine erysipelas, with special consideration given to etiologic factors and methods of immunization;

(b) Brucellosis, including research on strain S19 and occurrence of swine infection with Bang's bacillus (Bacillus abortus);

(c) Cattle tuberculosis -- investigation concerning application of agglutination reactions for diagnostic purposes;

(d) Grippe and murrain in hogs, perfection of diagnostic methods;

(e) Miliary infection in dogs -- an immuno-pathological problem.

The Microbiologic Faculty UMCS announces laboratory and practical studies of zoonosis as the basic subject of research. These studies will include brucellosis, tuberculosis, salmonella infections, and viruses. A textbook publication is planned. The title: Zoonosis -- Human Diseases Transmitted by Animals.

The Epizootiologic Faculty UMCS is planning research on bacteriophages, virus infections, and infectious abortion in mare and cow; the faculty intends to specialize in diseases of mother and young animals.

Studies at the Microbiologic Institute will include fagocytosis, bacteriophages, types of tubercle bacillus in domestic animals, and metabolism of erysipelotrix.

The following problems will be the subject of studies at the Institute of Epizootiology in Wroclaw:

1. Studies on the so called "invasion diseases" including the diagnostic use of intradermal tests and treatment of parasitic skin diseases;

2. Research work on tuberculosis (changes in blood after tuberculin administration), also on contagious anemias in horses (transmission in experimental animals).

The above-mentioned subjects adequately describe the basic needs of the People's Republic in the field of control and prevention of

contagious diseases. We anticipate team work and mutual cooperation. The designs are very ambitious but adjusted to the actual potentials of individual institutes.

SHORTAGES AND NEEDS OF OUR SCIENTIFIC EPIZOOTIOLOGIC INSTITUTIONS:

We shall emphasize only those factors hampering the progress of scientific work in PIW:

1. Location of the Institute at Pulawy -- a small town. This hampers easy access to sources of professional literature and makes an exchange of ideas with scholars in other allied fields, particularly medicine, rather difficult;

2. Lack of housing accomodations -- this does not permit full mobilization of a competent staff;

3. Imposition of additional duties pertaining to administration, production, and daily diagnosis upon the scientist.

In teaching institutions the following should be emphasized:

1. Lack of transportation means facilitating close contact with the farm area. This affects instruction work unfavorably. The clinical material delivered to city hospitals and institutes is inadequate and uninteresting. The main task of epizootiology is the control or prevention of contagious diseases, not their treatment. The proper area of an epizootiologist's activity is a farm or breeding center threatened by epidemic -- not a clinic;

2. Shortage of laboratory space and of stables for large animals.

3. Inadequate equipment of available installations to deal with contagious material.

(Points 2 and 3 have a bearing on the problem of personal safety of the staff members, because most animal diseases can be easily transmitted to humans.)

4. Lack of funds. Epizootiologic research work is ecpensive, requires numerous experimental animals, long observation of diseased animals, and travel throughout the country.

5. Additional work: instruction, administration, service.

6. Lack of adequate equipment and apparatus.

An unfavorable factor hampering efficient scientific activity is lack of professional journals in which the results of research can be published in full. The only existing paper Veterinary Medicine became a practitioner's forum. Purely scientific articles are printed rather reluctantly, or in the form of arbitrarily shortened synopses. This tends to discourage scientists because their work remains unpublished and finally becomes outdated.

Recommendations:

1. A general improvement of working conditions through:

(a) Well-planned supplementation of staff members, relief from overwork, better utilization of scientists.

(b) Creation of conditions favorable to work and offering

a reasonable guarantee of safety; providing institutes their own means of transportation and scientific equipment.

(c) Creation of better conditions for the publication of scientific research work and easier access to professional literature both domestic and foreign.

2. Organization of a research and teaching center within the Institute at Pulawy which would be qualified to carry out any kind of work pertaining to epizootiology.

3. Relating of research more closely to the farm area and giving more consideration in research to the characteristics prevailing locally.

4. Perfection of diagnostic and control methods against contagious diseases with respect to the grippe, murrain, swine erysipelas, infectious anemia in horses, cattle brucellosis, septicemia in carps, and bee infections.

5. Research on virus diseases and leptospirosis in animals.

Some additional information should be attached to Professor Stryszak's valuable report. A treatise on epizootiologists of the Lwow school will be written by Dean Trawinski. I wish to emphasize the present shortcomings of epizootiology, the necessity for widening its scope (general epizootiology), and the need for bringing theoretical and practical views fundamentally closer to the new biology of Michurin (microbiology) -- the necessity of bringing epizootiology into closer

contact with the new agricultural structure, with the productive cooperative movement, and farm collectivization. The part played by epizootiology in creating foundations of socialism in Poland is important to the sectors of breeding theory and the protection of man from zoonosis. It is necessary to emphasize shortcomings and make every effort to creata a new animal hygiene of the Michzurin type. Within the present structure of our teaching institutions a team is being formed which will develop an institute for the future study of microbiology, general epizootiology, and animal hygiene. It is my opinion that parasitology and invasion diseases should also be included. Close cooperation between microbiology and epizootiology is an important requirement of life and the country. Furthermore, Professor Stryszak did not dwell long enough on either his own epizootiologic research work or that of Associate Professor Doctor Domanski. Their achievements are an important part of Polish epizootiology.